

IN THE CLAIMS

Please cancel Claims 2-4, 18 and 33 and amend Claims 1, 5-12, 14-17, 19-28, 30-32, 34-43, 45-54 and 56-58 as shown below in clean form. A marked-up copy of the amended claims is attached.

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1. (Amended) An optical recording medium comprising:
a substrate;
a recording layer having a first index of refraction, formed on the substrate;
a first protective layer having a second index of refraction, formed on the recording layer; and
a transparent heat radiating layer having a third index of refraction, formed on the first protective layer so as to disperse heat from the recording layer, wherein the first index of refraction is higher than the second and third indexes of refraction and the recording layer is exposed to light via a side at which the transparent heat radiating layer is positioned to thereby perform recording and reproduction of information.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

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5. (Amended) An optical recording medium as set forth in claim 1, wherein the transparent heat radiating layer has a higher heat conductivity than the first protective layer.

6. (Amended) An optical recording medium as set forth in claim 5, wherein the transparent heat radiating layer has a heat conductivity of about 0.1 (W/cm·K) or more.

7. (Amended) An optical recording medium as set forth in claim 6, wherein the transparent heat radiating layer has a quenching coefficient, with respect to the light used for recording and reproducing, of less than about 0.1.

8. (Amended) An optical recording medium as set forth in claim 7, wherein the transparent heat radiating layer comprises at least one of BN, AlN, (SiN), SiC, Ta₂O₅, and diamond-state carbon.

9. (Amended) An optical recording medium as set forth in claim 1, wherein the transparent heat radiating layer is a multi-layer film comprising a plurality of layers stacked together, having substantially same optical constants and different heat constants.

10. (Amended) An optical recording medium as set forth in claim 1, further comprising a layer reflecting light including metal or semimetal, wherein the layer reflecting light is formed between the substrate and the recording layer.

11. (Amended) An optical recording medium as set forth in claim 1, further comprising an antireflection layer formed on the transparent heat radiating layer.

12. (Amended) An optical recording medium as set forth in claim 1, further comprising an antireflection layer between the transparent heat radiating layer and the recording layer.

14. (Amended) An optical recording medium as set forth in claim 1, wherein the recording layer comprises a material undergoing a phase change and a complex index of refraction of the recording layer changes under said light.

15. (Amended) An optical recording medium as set forth in claim 1, wherein the recording layer comprises a material having a magnetization state changeable under an action of said light into a polarized state.

16. (Amended) An optical recording medium as set forth in claim 1, wherein the recording layer comprises an organic dye material having a complex index of refraction that changes under said light with respect to a wavelength of the reproducing light.

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17. (Amended) An optical recording and reproduction device comprising:

- a light source;
- an optical recording medium; and
- an optical system focusing light from the light source to the optical recording medium, wherein the optical recording medium comprises,
 - a substrate,
 - a recording layer having a first index of refraction, formed on the substrate,
 - a first protective layer having a second index of refraction, formed on the recording layer, and
 - a transparent heat radiating layer having a third index of refraction, formed on the first protective layer so as to disperse heat from the recording layer, wherein the recording layer is exposed to the light via a side at which the transparent heat radiating layer is formed to thereby perform recording and reproducing of information, and the first index of refraction is higher than the second and third indexes of refraction.

18. (Cancelled)

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19. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein a length between the transparent heat radiating layer and the optical system is about 200 nm or less.

20. (Amended) An optical recording and reproduction device as set forth in claim 19, wherein the optical system comprises a solid immersion lens.

21. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein the transparent heat radiating layer has a higher heat conductivity than the first protective layer.

22. (Amended) An optical recording and reproduction device as set forth in claim 21, wherein the transparent heat radiating layer has a heat conductivity of about 0.1 (W/cm·K) or more.

23. (Amended) An optical recording and reproduction device as set forth in claim 22, wherein the transparent heat radiating layer has a quenching coefficient, with respect to the light used for recording and reproducing, of less than about 0.1.

24. (Amended) An optical recording and reproduction device as set forth in claim 23, wherein the transparent heat radiating layer comprises at least one of BN, AlN, SiN, SiC, Ta₂O₅, and diamond-state carbon.

25. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein the transparent heat radiating layer is a multi-layer film comprising a plurality of layers stacked together, having substantially same optical constants and different heat constants.

26. (Amended) An optical recording and reproduction device as set forth in claim 17, comprising a layer reflecting light including metal or semimetal, wherein the layer reflecting light is formed between the substrate and the recording layer.

27. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein said optical recording medium further comprises an antireflection layer on the transparent heat radiating layer.

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28. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein said optical recording medium further comprises an antireflection layer between the transparent heat radiating layer and the recording layer.

30. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein the recording layer comprises a material having a magnetization state changeable under said light into a polarized state.

31. (Amended) An optical recording and reproduction device as set forth in claim 17, wherein the recording layer comprises an organic dye material having a complex index of refraction that changes under said light with respect to a wavelength of the reproducing light.

32. (Amended) An optical recording and reproduction device comprising:
a light source;
an optical recording medium; and
an optical system focusing light from the light source to the optical recording medium, wherein the optical recording medium comprises,
a substrate,
a phase change recording layer having a first index of refraction, formed on the substrate and comprising a material undergoing a phase change under said focusing of light,
a first protective layer having a second index of refraction, formed on the phase change recording layer, and
a transparent heat radiating layer having a third index of refraction, formed on the first protective layer so as to disperse heat from the phase change recording layer, wherein the first index of refraction is higher than the second and third indexes of refraction, and the phase

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change recording layer is exposed to light via a side at which the transparent heat radiating layer is formed to thereby perform recording and reproducing of information.

33. (Cancelled)

34. (Amended) An optical recording and reproduction device as set forth in claim 32, wherein a length between the transparent heat radiating layer and the optical system is about 200 nm or less.

35. (Amended) An optical recording medium as set forth in claim 34, wherein the optical system comprises a solid immersion lens.

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36. (Amended) An optical recording and reproduction device as set forth in claim 32, wherein the transparent heat radiating layer has a higher heat conductivity than the first protective layer.

37. (Amended) An optical recording and reproduction device as set forth in claim 36, wherein the transparent heat radiating layer has a heat conductivity of about 0.1 (W/cm·K) or more.

38. (Amended) An optical recording and reproduction device as set forth in claim 37, wherein the transparent heat radiating layer has a quenching coefficient, with respect to the light used for recording and reproducing, of less than about 0.1.

39. (Amended) An optical recording and reproduction device as set forth in claim 38, wherein the transparent heat radiating layer comprises at least one of BN, AlN, SiN, SiC, Ta₂O₅, and diamond-state carbon.

40. (Amended) An optical recording and reproduction device as set forth in claim 32, wherein the transparent heat radiating layer is a multi-layer film comprising a plurality of

layers stacked together, having substantially same optical constants and different heat constants.

48. *ant.*
41. (Amended) An optical recording and reproduction device as set forth in claim 32, comprising a light reflecting layer including metal or semimetal, wherein the light reflecting layer is formed between the substrate and the phase change recording layer.

42. (Amended) An optical recording and reproduction device as set forth in claim 32, wherein said optical recording medium further comprises an antireflection layer on the transparent heat radiating layer.

43. (Amended) An optical recording and reproduction device as set forth in claim 32, wherein said optical recording medium further comprises an antireflection layer between the transparent heat radiating layer and the recording layer.

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45. (Amended) An optical recording and reproduction device comprising:
a light source;
an optical recording medium; and
an optical system focusing light from the light source to the optical recording medium, wherein the optical recording medium comprises:

a substrate,
a recording layer having a first index of refraction, formed on the substrate,
a first protective layer having a second index of refraction, formed on the recording layer, and
a transparent heat radiating layer having a third index of refraction, formed on the first protective layer so as to disperse heat from the recording layer, wherein

the first index of refraction is higher than the second and third indexes of refraction, and the light is focused from the optical system comprising a near field with the numerical aperture more than 1 to the recording layer via a side at which the transparent heat radiating layer is formed for recording and reproducing information.

46. (Amended) An optical recording medium as set forth in claim 45, wherein the optical system comprises a solid immersion lens.

47. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein the transparent heat radiating layer has a higher heat conductivity than the first protective layer.

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48. (Amended) An optical recording and reproduction device as set forth in claim 47, wherein the transparent heat radiating layer has a heat conductivity of about 0.1 (W/cm·K) or more.

49. (Amended) An optical recording and reproduction device as set forth in claim 48, wherein the transparent heat radiating layer has a quenching coefficient, with respect to the light used for recording and reproducing, of less than about 0.1.

50. (Amended) An optical recording and reproduction device as set forth in claim 49, wherein the transparent heat radiating layer comprises at least one of BN, AlN, SiN, SiC, Ta₂O₅, and diamond-state carbon.

51. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein the transparent heat radiating layer is a multi-layer film comprising a plurality of layers stacked together, having substantially same optical constants and different heat constants.

52. (Amended) An optical recording and reproduction device as set forth in claim 45, comprising a layer reflecting light, including metal or semimetal, wherein the layer reflecting light is formed between the substrate and the recording layer.

53. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein said optical recording medium further comprises an antireflection layer on the transparent heat radiating layer.

54. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein said optical recording medium further comprises an antireflection layer between the transparent heat radiating layer and the recording layer.

56. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein the recording layer comprises a material undergoing a phase change and a complex index of refraction of the material changes under said light.

57. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein the recording layer comprises a material having a magnetization state changeable under the action of said light into a polarized state.

58. (Amended) An optical recording and reproduction device as set forth in claim 45, wherein the recording layer comprises an organic dye material.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.